

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**ORDER No. R2-2003-0076**

**SITE CLEANUP REQUIREMENTS FOR:**

**UNITED STATES DEPARTMENT OF DEFENSE, DEPARTMENT OF THE ARMY;  
UNITED STATES DEPARTMENT OF DEFENSE, U.S. ARMY CORPS OF ENGINEERS,  
SAN FRANCISCO DISTRICT;  
CALIFORNIA STATE LANDS COMMISSION**

**HAMILTON ARMY AIRFIELD  
NOVATO, MARIN COUNTY**

**INBOARD AREA AND COASTAL SALT MARSH**

**Executive Summary:** Hamilton Army Airfield (Hamilton) is a former military installation located along westerly San Pablo Bay. Hamilton is being returned to civilian uses. The former operating airfield portion of Hamilton consists of approximately 644 acres. 630 acres will be transferred to the State Coastal Conservancy (SCC) to re-establish fresh and tidal wetlands. Ten acres of the property lie outboard of the Bay front perimeter levee in the existing coastal salt marsh habitat. Transfer of fourteen acres of the main airfield parcel to the City of Novato is planned. The fourteen acres contain a levee and levee easement, referred to as the New Hamilton Partners levee. Residual contamination from former military operations necessitates additional investigations, removals, remediation (placement of dredged sediment), and adoption of institutional controls, to assure that the proposed wetlands can sustain their intended uses. Many, but not all, of the required environmental actions have already been completed under the responsibility of the U.S. Army (Army). The California State Lands Commission owns seventy-eight acres of coastal salt marsh habitat, adjacent to the airfield portion of Hamilton, and a portion of those acres have contamination from former military operations.

A Record of Decision/Remedial Action Plan (ROD/RAP) has been prepared by the Army, Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board staff (Board). This ROD/RAP commits the Army and approving agencies to implement specified environmental actions to meet contaminant concentration goals (action goals) for the restoration of wetlands. The property will be transferred before all activities have been completed. The remaining investigations, remediation and placement of dredged sediment will be conducted after transfer. This Order will ensure that the responsibilities of the Army, including the U.S. Army Corps of Engineers, San Francisco District, Civil Works Program, (Corps) as described in the ROD/RAP, are overseen and enforceable.

With adoption of this Order, the Board will assume lead state regulatory agency status for the implementation of the ROD/RAP and the remediation and restoration of the wetlands. The Army, either through their Base Realignment and Closure program (BRAC) or the U.S. Army Corps of Engineers, San Francisco District, Civil Works Program (Corps) (for the dredged sediment

placement) will be responsible for environmental response, assurance and restoration activities. Waste Discharge Requirements will be adopted in the near future for the wetland restoration project and dredged sediment placement.

**The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter the Board), finds that:**

- 1. Site location:** Hamilton is a former military installation located in Novato, Marin County. The portion of Hamilton covered by this order consists of a diked and subsided bayfront parcel located easterly of the western coastal range, adjacent to San Pablo Bay, in the northern portion of San Francisco Bay (refer to Figure 1). The Inboard Area (IA) portion of the site (the major portion of the main airfield parcel, see Figure 2) lies westerly of the Bay front perimeter levee, includes the levee and encompasses six hundred and twenty acres making up most of the former airfield operating area. The Coastal Salt Marsh (CSM) lies outboard of the levee along the eastern edge of the site and encompasses 88 acres. Former agricultural lands and salt marshes bound the property to the north and south. A parcel to the north of the site is owned by the California State Lands Commission and was previously owned and operated by the Army as a rifle range and an antennae field with associated support buildings. This property is referred to as the North Antenna Field (NAF) and is currently being investigated for site cleanup as a formerly used defense site (FUDS) in actions separate from this order.
- 2. Site owner(s):** The Army currently owns the IA and approximately 10 acres of the CSM. The Army intends to transfer ownership of its holdings to the California Coastal Conservancy (SCC) in the near future. Seventy-eight acres of the CSM are owned by the California State Lands Commission (refer to Figure 2) as tideland and submerged lands.
- 3. Site History:** The U.S. Army Air Corps constructed Hamilton Army Airfield on reclaimed tidal wetlands in 1932. The site, previously known as Marin Meadows, had been used as ranch and farm land since it was part of the Mexican Land Grant. Military operations began in December 1932, first as a base for bombers and later as a base for transport and fighter aircraft. The base was renamed Hamilton Air Force Base in 1947 when it was transferred to the newly created U.S. Air Force (USAF). In 1974, the USAF deactivated the Base and initiated transfer of the property to other military or government agencies. In 1975, as part of the transfer process, the residential portion of the installation, along with support facilities, was transferred to the U.S. Navy. Custodial management of other areas was taken over by the General Services Administration (GSA). In 1976, the Army was given permission to use the runway and ancillary facilities and several other buildings for regular Army and Army Reserve operations. A parcel in the hanger area went to the U.S. Coast Guard in 1983. The Army continued to use portions of Hamilton on a permit basis until 1984, when the Army officially acquired portions of the airfield and property management responsibilities were transferred to the Presidio of San Francisco. Also, in 1984, the State of California resolved a title dispute with the United States over certain lands subject to tidal

action, including the CSM. In 1988, the property was declared surplus property under the Base Realignment and Closure Act (BRAC). Minor Army, U.S. Army Reserve, and United States Coast Guard operations were permitted to use the runway and ancillary facilities until aircraft operations were discontinued in 1994.

Over the years of military airfield operations, the IA was used for a variety of functions. These functions were supported by underground storage tanks (UST), aboveground storage tanks (AST), transformers and transformer pads, storm drain and sanitary sewer systems, the Former Sewage Treatment Plant (FSTP) (including sludge drying beds), fuel lines, revetment areas, and the Perimeter Drainage Ditch (PDD), which collected runoff from the Base as well as the surrounding agricultural lands (refer to Figure 3). The Army has indicated that pesticides were used throughout the site for vector control.

Portions of the CSM were also used to support operations on the main airfield. Activities within the CSM included emergency rescue operations in San Pablo Bay and disposal of construction debris. Electrical transformers, transformer pads, and a burn pit at the East Levee Construction Debris Disposal Area (ELCDDA) are located in the CSM. The CSM also includes the Outfall Drainage Ditch (ODD), which receives storm water runoff and drainage from the main airfield, and the FSTP Outfall, which discharged effluent from the Former Sewage Treatment Plant.

As a result of the closure, an agreement was reached for the transfer of the IA and CSM property owned by the Army to the SCC for use as constructed (IA) and rehabilitated (CSM) wetlands. Pollutants and contaminants found on the site require remediation by the Army so that the creation of the wetlands utilizing clean dredged sediment from various San Francisco Bay projects can proceed. The Army, the SCC and the Corps are proposing an early transfer of the site (i.e. prior to completion of all remedial actions) in order to begin initial steps for the Hamilton Wetlands Restoration Project while still requiring site cleanup by the Army.

4. **Investigations, Removals, and Remediation to Date:** The Army has conducted extensive investigations and removal actions to remediate portions of the site. The Army still has further investigations, removals, remediation, and supporting actions to complete as described below that will be accomplished after the early transfer and are addressed by this order. The DTSC, assisted by the Board and other resource agencies, has been the primary state regulatory agency overseeing the cleanup efforts.
5. **Contaminants for Removal and Remediation:** Based on historical investigations and removal actions conducted to date, the types of contaminants detected and/or remaining at various sites within the IA and CSM include:
  - Total petroleum hydrocarbons (TPH) measured as diesel (-D), gasoline (-G), Jet Propulsion fuel (JP-4), or motor oil along with its accompanying volatile organic compounds (VOCs) of benzene, ethylbenzene, toluene, and xylenes associated with fuel storage and fueling operations.

- Metals
- Dioxins
- Semi-volatile organic compounds (SVOCs) including polynuclear aromatic hydrocarbons (PAHs). Analytical data obtained from unpaved airfield areas across Hamilton indicate residual PAHs are present adjacent to the southern end of the runway.
- Polychlorinated biphenyls (PCBs)
- Pesticides. Analytical data obtained from unpaved airfield areas across Hamilton indicate residual DDTs are present throughout the IA.
- Potential additional releases of contaminants to site soils from historical activities at the Hamilton were identified in the Archive Search Report (ASR) prepared by the Army. These potentially contaminated sites will be addressed as part of this order.

6. **Record of Decision/Remedial Action Plan:** The Army has prepared, pursuant to CERCLA and the NCP, and in coordination with DTSC and the Board, a ROD/RAP that summarizes the investigations, removals, and remediation conducted to date and selects remedial actions to be implemented. The Army's execution of the ROD/RAP commits the Army to perform the required investigations and selected environmental actions necessary to eliminate or significantly reduce the potential for exposure of future wetland ecological receptors to impacted soil and sediments. For the land use proposed (wetlands), there are no significant human health threats. It is the intent of the Board through its Executive Officer, and the DTSC through its Director, to execute the ROD/RAP document. The Board is satisfied that based on Board staff's involvement to date, the use of the evaluation criteria of 40 CFR 300.430 and similar criteria found in Section 25356.1 of the California Health and Safety Code, the participation of DTSC and execution of the ROD/RAP by the Executive Officer, the remedies detailed in the ROD/RAP provide adequate protection and consideration of the Board's water quality, public health and environmental concerns as found in the Water Code, State Water Resources Control Board's Policies, and the Board's Basin Plan as further detailed below. The ROD/RAP will be implemented through this order because of the Board's mission and experience with wetlands, with the agreement of DTSC. As discussed in the ROD/RAP, the Hamilton Wetlands Restoration Project (HWRP), consisting of a partnership between the Corps and the SCC will restore wetlands at Hamilton subsequent to completion of the majority of the prescribed remediation. Through placement of dredged sediment, the HWRP will assist in meeting the performance criteria of three feet of stable cover, required for selected sites in the ROD/RAP. It is also anticipated that, at a later date, and upon completion of the property transfer, the Board will adopt Waste Discharge Requirements (WDRs), permitting the Corps and SCC to implement placement of dredged sediments as part of the wetland development.

Implementation of the ROD/RAP requires that the following tasks be completed:

- Signing of a Land Use Covenant
- Implementation of Institutional Controls in the form of land use restrictions;
- Assurance that the performance criteria of three feet of stable cover is met, where required;

- Completion of investigation to determine final activities, if any, required at the Archive Search Report sites, unpaved PAH-contaminated soils adjacent to runways, unpaved area DDTs, and stockpiled soils;
  - Completion of Remedial Design/Remedial Action
  - Compliance with the four selected environmental action alternatives;
    1. No Further Action
    2. Excavation and Offsite Disposal
    3. Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites
    4. Manage Onsite, with Monitoring and Maintenance, for Army Corps Civil Works Program issues
7. **California Environmental Quality Act (CEQA):** The California Environmental Quality Act (CEQA) requires all Projects approved by State agencies to be in full compliance with CEQA. The Coastal Conservancy as lead agency has prepared a subsequent environmental impact report that was considered and relied upon in preparation of this Order. The Board as a responsible agency under CEQA finds that all environmental effects have been identified for the project activities which it is required to approve, and that those proposed project activities, as conditioned, will not have significant adverse impacts on the environment.
8. **Current Regulatory Status:** Waste Discharge Requirements Order No. 97-088 for Hamilton was issued in July 1997 to the Department of the Army for a dike project allowing the beneficial reuse of contaminated soils in dikes. This project did not materialize. This Order rescinds Order No. 97-088. The present project site is currently not subject to other Board adopted orders.
9. **Purpose of Order:** This order prescribes Site Cleanup Requirements (SCRs) for the IA and CSM of Hamilton for the purpose of providing an enforceable mechanism for implementing the ROD/RAP. The order includes general provisions and tasks necessary to contain and remediate soil and sediment pollution at the site as identified and required in the ROD/RAP. This order also details requirements for sites identified in the ROD/RAP as requiring further investigation and possible remediation.
10. **Named Dischargers:** The U.S. Army BRAC and the Army Corps are both named as dischargers, because the U.S. Army is the owner and operator of the property and because of evidence that the dischargers have caused or permitted waste, or threaten to cause or permit waste, to be discharged to soils or sediments at the HAAF IA where has or threatens to cause a discharge into waters of the State. In the case of the Army Corps, the threat of discharge occurs due to grading of polluted soil and/or breaching of the bay front levee to be conducted as part of the HWRP. The Army is also named a discharger because of evidence that it has caused pollutants to be discharged to soils or sediments in the CSM that have caused a discharge into waters of the State. Under the ROD/RAP, developed in accordance with CERCLA and the NCP, the Army BRAC program agrees to be responsible for conducting the environmental response actions detailed in the ROD/RAP and the Army

Corps, through implementation of the HWRP, is responsible for conducting the environmental assurance actions detailed in the ROD/RAP.

The California State Lands Commission is named as discharger in this Order due solely to its ownership of the tidal and submerged lands in portions of the CSM. However, the Army is responsible for compliance with the investigation and remediation tasks of this Order. The Board will look to the Army for full compliance with this Order.

11. **Future Modification of Order:** As additional information is generated, the Board may modify the dischargers named or the tasks identified in this order.
12. **Remedial Investigations and Remedial Action Selection:** The Army identified a number of sites (BRAC sites), listed on Table 1, for which it conducted investigations and recommended remedial actions in the ROD/RAP. The Army also conducted some initial investigations regarding pesticides in surface soils in the IA grassland areas and PAHs identified in soils adjacent to the runway; these investigations were only preliminary in nature and further characterization is required. The Board concurs with the remedial actions selected in the ROD/RAP (see Table 2).
13. **Interim Removal Actions:** Removal actions were conducted in 1998, 1999 and 2001 for some of the identified sites.
14. **Basin Plan:** The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The State Water Resources Control Board and the Office of Administrative Law approved the revised Basin Plan on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in 23 CCR 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.
15. **Beneficial Uses:** The potential beneficial uses of groundwater underlying and adjacent to the site include:
  - Industrial process water supply
  - Industrial service water supply
  - Agricultural water supply
  - Municipal and Domestic Supply  
(Deeper aquifers only; shallow zones are brackish)

The existing and potential beneficial uses of San Pablo Bay include:

- Industrial process supply or service supply
- Water contact and non-contact recreation
- Wildlife habitat

- Fish migration and spawning
- Navigation
- Estuarine habitat
- Shellfish harvesting
- Preservation of rare and endangered species
- Ocean, commercial, and sport fishing

- 16. State Water Board Policies:** State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires that existing high quality of water must be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses and will not result in water quality less than that prescribed in state water quality policies. Any discharge of waste to existing high quality waters must meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that 1) pollution or nuisance will not occur and 2) the highest water quality consistent with the maximum benefit to the people of the state will be maintained. This order and its requirements are consistent with the provisions of Resolution 68-16.

State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high total dissolved solids TDS (brackish), low yield, or naturally-high contaminant levels. Based on site investigations, on-site groundwater within the upper aquifer zone adjacent to the Bay is brackish (>greater than 3,000 mg/l TDS) and is therefore not considered a potential source of drinking water. There are no known impacts to any deeper aquifers.

- 17. Action Goals:** The cleanup goal of this order is restoration of the beneficial uses of the existing CSM and to ensure the suitability of the Hamilton IA for future beneficial uses as a wetland. Development of soil and sediment environmental action goals for the IA and CSM are described in the ROD/RAP and are incorporated and implemented by this order (see attached Table 3). The dischargers will use these goals to develop its remedial implementation plans and to determine the extent of remedial investigation of all other sites not yet fully investigated. In addition, the following performance criteria to meet wetland beneficial uses is prescribed in the ROD/RAP for the IA: three feet of stable cover – or an

appropriate alternative action providing a level of protection equivalent to three feet of stable cover, where required by the Board. Board staff and other regulatory and resource agencies participated in the joint development of these soil and sediment cleanup goals and performance criteria. The Board agrees that the ROD/RAP goals (Table 3) will restore the CSM beneficial uses and allow for the beneficial use of the IA as wetlands.

18. **Basis for 13304 Order:** The dischargers have caused or permitted waste, or threaten to cause or permit any waste, to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.
19. **Cost Recovery:** Pursuant to California Water Code Section 13304, the dischargers are hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this order.

This provision applies to the Army and the Corps, to the extent allowable under Federal Law.

20. **Basis For Regional Water Board's Authority Concerning the ROD/RAP:** The Board is serving as lead state agency for regulatory oversight of the ROD/RAP pursuant to Health & Safety Code section 25356.1 to implement and enforce the requirements of Health & Safety Code section 25356.1.5.
21. **Notification:** The Board has notified the dischargers and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.
22. **Public Hearing:** The Board, at a public meeting, heard and considered all comments pertaining to this discharge.
23. **Other Plans and Permits:** In future Board action, the Corps will be required by the Board under Waste Discharge Requirements (CWC §13263) to implement a soil management plan for management of contaminated soils/sediments as well as placement of dredged sediment on the site in compliance with the ROD/RAP. The dischargers must also comply with a NPDES Construction Activity Storm Water permit and a stormwater pollution prevention plan. [See 40 CFR (CFR) Parts 122, 123, and 124 and <http://www.swrcb.ca.gov/stormwtr/docs/finalconstpermit120602.doc> for State Water Resources Control Board Water Quality Order 99-09 implementation]



**IT IS HEREBY ORDERED**, pursuant to Section 13304 of the California Water Code, and Health & Safety Code section 25356 et seq., that the dischargers (or their agents, successors and assigns) shall cleanup and abate the effects described in the above findings as follows:

**A. PROHIBITIONS**

1. The discharge of wastes or hazardous substances in a manner which will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.
2. Further significant migration of wastes or hazardous substances through surface and/or subsurface transport to waters of the State, and migration of wastes or hazardous substances at levels which may affect human or ecological receptors, is prohibited.
3. Activities associated with the surface and/or subsurface investigation and cleanup causing significant adverse migration of wastes or hazardous substances are prohibited.

**B. TASKS**

**The Dischargers shall implement the ROD/RAP and other necessary tasks as follows:**

**INBOARD AREA (IA)**

**1. RESULTS OF HYDRODYNAMIC MODELLING AND GEOMORPHIC ANALYSIS**

**COMPLIANCE DATE: January 5, 2004**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which provides the results of hydrodynamic modeling conducted to evaluate whether site soils will be impacted by scour, after dredged material has been placed, at the time tidal action is restored to the airfield. The report shall also include a geomorphic analysis to evaluate thalweg depths that might be expected once the marsh matures. This report will assist in making decisions regarding excavation of contaminated site soils prior to construction of the HWRP. The report shall evaluate those areas where the performance criteria of three feet of stable cover cannot be met and identify areas that need to be addressed further.

**2. BRAC SITES**

**a. ALTERNATIVE 2 – EXCAVATION AND OFFSITE DISPOSAL -  
SELECTED IN ROD/RAP– PROPOSED REMEDIAL ACTIONS**

**COMPLIANCE DATE: 30 Days Prior to Needed Approval**

Submit a technical report, including a workplan, acceptable to the Executive Officer, describing remedial actions to be taken, implementation tasks and schedule. The remedial actions shall consider the action goals for soil identified in finding 17.

**b. ALTERNATIVE 3 – MANAGE IN-SITU WITH MONITORING AND MAINTENANCE - SELECTED – PROPOSED REMEDIAL ACTIONS**

**COMPLIANCE DATE: 30 Days Upon Completion of Task 1**

Contingent on the results of Task 1, submit a technical report, including a workplan, acceptable to the Executive Officer, evaluating whether sites selected for Alternative 3 in the ROD/RAP are subject to tidal scour such that the performance criteria cannot be achieved, and thus the affected soils shall be excavated and disposed of offsite in accordance with Alternative 2 rather than Alternative 3. Sites identified that can be managed in place under Alternative 3 will be addressed in Task 6 below. For all sites requiring excavation, the technical report shall include a workplan, describing remedial actions to be taken, implementation tasks and schedule. The remedial actions shall consider the action goals for soil identified in finding 17. The technical reports for Tasks 2a and 2b may be combined.

**c. ALTERNATIVE 2 SELECTED - IMPLEMENTATION OF REMEDIAL ACTIONS**

**COMPLIANCE DATE: Within 60 days of Completion of Remedial Actions**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which documents implementation of the remedial measures for addressing soil pollution in the IA, for BRAC sites, as described in the technical reports described in Tasks 2.a and 2.b. The report shall describe and provide the rationale for any variances between the approved remedial design specified in the technical reports described in Tasks 2.a and 2.b and the remedial measures actually implemented.

**3. ARCHIVE SEARCH REPORT (ASR) SITES**

**a. ASR SITES WORKPLAN**

**COMPLIANCE DATE: 30 days From Date of this Order**

Submit a technical report workplan, acceptable to the Executive Officer, to inventory chemicals used on the sites listed below and to identify all potential sources of pollution on the sites. The workplan shall specify investigation methods and a proposed time schedule to evaluate the nature and extent of pollution, if present, on the sites. The following sites (see Figure 3), at a minimum, must be addressed in the ASR workplan:

- Testing Range
- Skeet Range
- Firing-In-Buttress
- Alleged HTRW Disposal Area \*

*\*Note:* The Army has voluntarily submitted a workplan for the alleged HTRW disposal area, which was approved by the Board. Therefore only tasks 3.b through 3.e remain to be completed for it.

**b. ASR SITES - COMPLETION OF SOURCE IDENTIFICATION**

**COMPLIANCE DATE: Per Approved Schedule in Task 3.a**

Submit a technical report, acceptable to the Executive Officer, documenting completion of source identification tasks identified in the Task 3.a workplan. The technical report shall identify confirmed and possible sources of pollution.

**c. ASR SITES - REMEDIAL INVESTIGATION WORKPLAN**

**COMPLIANCE DATE: Per Approved Schedule in Task 3.a**

Submit a technical report workplan, acceptable to the Executive Officer, to define the vertical and lateral extent of soil and groundwater pollution. The workplan shall specify investigation methods and a proposed time schedule for implementation and completion of the remedial investigation, including submittal of a report proposing final remedial actions.

**d. ASR SITES - COMPLETION OF REMEDIAL INVESTIGATION**

**COMPLIANCE DATE: Per Approved Schedule in Task 3.c**

Submit a technical report, acceptable to the Executive Officer, documenting completion of necessary tasks identified in the Task 3.c workplan. The technical report shall define the vertical and lateral extent of pollution down to concentrations at or below Table 3 cleanup goals for soil and groundwater.

**e. ASR SITES - PROPOSED FINAL REMEDIAL ACTIONS**

**COMPLIANCE DATE: Per Approved Schedule in Task 3.c**

Submit a technical report, acceptable to the Executive Officer, containing:

- a. Results of the remedial investigation
- b. Recommended final remedial actions
- c. Implementation tasks and schedule

Item b shall consider the preliminary action goals for soil identified in finding 17.

**f. ASR SITES - IMPLEMENTATION OF REMEDIAL ACTIONS**

**COMPLIANCE DATE: 60 Days After Completion of Remedial Actions and Prior to Placement of Sediment**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which documents implementation of the remedial measures for addressing soil pollution in the ASR sites, as described in the technical report described in Task 3.e. The report shall describe and provide the rationale for any variances between the approved remedial design specified in the technical report described in Task 3.e and the remedial measures actually implemented.

**4. RUNWAY SOILS STOCKPILES – REUSE/DISPOSAL**

**COMPLIANCE DATE: 30 Days Prior to Proposed Action**

Submit a technical report, acceptable to the Executive Officer, identifying the contaminant concentrations within the existing soil stockpiles on the runway and the determination of any additional sampling required, applicable reuse or disposal.

**5. ALTERNATIVE FOUR SELECTED - UNPAVED AREAS**

**a. UNPAVED AREAS PESTICIDES (DDTs) - COMPLETION OF SITE INVESTIGATION**

**COMPLIANCE DATE: 30 Days from Date of This Order**

The Corps has voluntarily submitted a workplan detailing additional sampling that would be conducted to appropriately characterize the extent of DDTs contamination in surface soils in the IA. Board staff approved this workplan. This task requires the submittal of a technical report, acceptable to the Executive Officer, documenting completion of necessary tasks identified in the approved workplan. The technical report shall define the vertical and lateral extent of pollution down to concentrations identified in the cleanup goals referred to in finding 17.

**b. UNPAVED AREAS PESTICIDES (DDTs) - PROPOSED ENVIRONMENTAL ACTIONS**

**COMPLIANCE DATE: February 6, 2004**

Submit a technical report, acceptable to the Executive Officer, integrating the results of the investigation in tasks 1. (Hydrodynamic and geomorphic analysis) and 5.a. (completion of DDT remedial investigation) and recommending specific actions necessary to meet the performance criteria and cleanup goals identified in Finding 17 for all impacted areas.

**c. UNPAVED AREAS CONTAMINATED WITH PAHS, ADJACENT TO RUNWAY - PROPOSED IMPLEMENTATION OF ENVIRONMENTAL ACTIONS**

**COMPLIANCE DATE: February 6, 2004**

Submit a technical report, acceptable to the Executive Officer, integrating the results of the investigation in task 1. (Hydrodynamic and geomorphic analysis) and the available PAH data and recommending implementation of actions necessary to meet the performance criteria and cleanup goals identified in finding 17.

**6. INBOARD AREA IMPLEMENTATION OF ENVIRONMENTAL AND REMEDIAL ACTIONS – HWRP DEVELOPMENT PLAN**

**COMPLIANCE DATE: 120 Days Prior to Needed Approval and Prior to Placement of Sediment**

The dischargers shall submit technical report(s), acceptable to the Executive Office, detailing the HWRP Development that contains, at a minimum, the following:

- a. Wetland Restoration Project Narrative to include project description;
- b. Operations Plan for Delivery of Dredged Material and Site Construction;
- c. Offloader Pipeline Design and Implementation Plan;
- d. On-Site Water Management;
- e. Soil Management Plan;
- f. Wetlands Monitoring Plan, including long-term monitoring for contaminants, an Adaptive Management Plan and a QA/QC plan;
- g. Proposed procedures and schedule for changes.

This technical report(s) shall detail the remedial actions for BRAC Sites where Alternative 3 is selected and the environmental actions addressed in Task 5. Alternative 3 is the final remedy for sites where residual concentrations of contaminants are greater than the action goals listed in finding 17 and where the performance criteria can be met.

**7. IMPLEMENTATION OF ROD/RAP AS DETAILED IN TASK 6**

**COMPLIANCE DATE: 60 Days Prior to work on Levee Breach**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which documents implementation of the remedial and environmental actions for addressing soil pollution in the IA, as described in the technical report described in Task 6. The report shall describe and provide the rationale for any variances between the approved design specified in the technical report described in Task 6 and the remedial and environmental actions actually implemented.

## **8. WORKPLAN FOR EVALUATING REMEDIAL ACTION EFFECTIVENESS**

**COMPLIANCE DATE: 60 Days Prior to Levee Breach**

The dischargers shall submit a workplan, acceptable to the Executive Officer, that proposes methods and documentation to evaluate the effectiveness of remedial and environmental actions implemented within the IA. The report shall evaluate the current conditions. The report shall provide the procedures and processes for collection and analyses of data sufficient to evaluate remedial and environmental action effectiveness on an annual basis to 5 years after levee breach and tidal action has been restored to the Hamilton site and every 5 years thereafter. The Corps through the HWRP will be monitoring the site for 13 years after levee breach. This time frame is associated with the HWRP's authorization to conduct monitoring and adaptive management for 13 years post-levee-breach. These monitoring activities also referred to in Task 6, item F may be referenced in the workplan.

## **9. ANNUAL EVALUATION OF REMEDIAL ACTION EFFECTIVENESS**

**COMPLIANCE DATE: Annually for First 5 Years After Levee Breach on January 2<sup>nd</sup> of each Year**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which documents implementation of the approved workplan specified in Task 8. The report shall provide the results of monitoring and other activities conducted and propose modifications to the workplan, if necessary. The Executive Officer may approve requests for revisions to submittal dates to be commensurate with activities at the site.

## **10. 5-YEAR EVALUATION OF REMEDIAL ACTION EFFECTIVENESS**

**COMPLIANCE DATE: 5 Years after Levee Breach and every 5 years thereafter**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which documents implementation of the workplan specified in Task 8. The report shall provide the results of the remedial action evaluation, and if necessary, propose modifications and a time schedule to improve monitoring and evaluation of the existing remedial measures or evaluation and implementation of alternative remedial measures.

The Executive Officer may approve requests for revisions to submittal dates to be commensurate with activities at the site.

**COASTAL SALT MARSH (CSM) [Tasks 11 –16]**

**11. WORKPLAN - ADDITIONAL REMEDIAL INVESTIGATIONS**

**COMPLIANCE DATE: 30 Days From Date of This Order**

The dischargers shall submit a workplan, acceptable to the Executive Officer, which describes any additional soil and/or groundwater investigation necessary to completely define the extent of pollution in the CSM. The workplan shall specify investigation methods and a proposed time schedule.

**12. ROD/RAP DESIGN DETAILS AND SOIL MANAGEMENT PLAN**

**COMPLIANCE DATE: 60 Days Prior to Planned Entry & Excavation**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which provides design details of remedial measures for the CSM, to address remedial actions proposed in the ROD/RAP and the extent of contamination in the CSM, as described in Task 11. The report shall include detailed design criteria, construction details, and procedures and schedule for implementation of the remedial actions. A soil management plan must be included in the technical report as a separate element of remedial design.

**13. IMPLEMENTATION OF REMEDY – CONSTRUCTION REPORT**

**COMPLIANCE DATE: 60 Days After Completion of Remedial Actions**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which documents implementation of the approved remedial measures for addressing pollution within the CSM, as proposed in Task 12.

**14. WORKPLAN FOR EVALUATING REMEDIAL ACTION EFFECTIVENESS**

**COMPLIANCE DATE: 60 Days Prior to Planned Entry & Excavation**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which proposes methods and documentation to evaluate the effectiveness of remedial actions implemented within the CSM. The report shall evaluate the current field conditions and the existing monitoring program, and recommend new surface water and sediment confirmation sampling locations. The report shall provide for collection and

analyses of data sufficient to evaluate remedial action effectiveness on an annual basis for 5 years after implementation and every 5 years thereafter, as appropriate.

#### **15. ANNUAL EVALUATION OF REMEDIAL ACTION EFFECTIVENESS**

**COMPLIANCE DATE:**                    **Implement 90 Days from Completion of Task 14;  
Annually for 5 Years on July 5<sup>th</sup> of each year**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which documents implementation of the technical report specified in Task 14, as necessary to address pollution within the CSM. The report shall provide the results of the remedial action evaluation, and if necessary, propose modifications to improve the existing remedial actions and/or monitoring activities. The Executive Officer may approve requests for revisions to submittal dates to be commensurate with activities at the site.

#### **16. 5-YEAR EVALUATION OF REMEDIAL ACTION EFFECTIVENESS**

**COMPLIANCE DATE:**                    **First Evaluation coincides with 5<sup>th</sup> Annual Report  
in Task 15 and every 5 years thereafter, as  
appropriate**

The dischargers shall submit a technical report, acceptable to the Executive Officer, which documents implementation of the technical report specified in Task 14, as necessary to address pollution within the CSM. The report shall provide the results of the remedial action evaluation, and if necessary, propose modifications to improve the existing remedial measures or evaluation and implementation of alternative remedial measures. The Executive Officer may approve requests for revisions to submittal dates to be commensurate with activities at the site.

### **COMMON TASKS**

#### **17. STORMWATER CONTROL PLANS**

**COMPLIANCE DATE:**                    **Prior to October 15 of the year of  
construction or at least 60 days prior to  
Intent to Construct**

For each proposed development greater than 1 acre in size, the dischargers shall submit a Notice of Intent to the State Water Resources Control Board, prepare and submit a Storm Water Pollution Prevention Plan acceptable to the Executive Officer, and implement Best Management Practices (BMPs) for the control of storm water, in accordance with requirements specified in the State Water Resources Control Board General Permit for



Storm Water Discharges Associated with Construction Activities (NPDES Permit No. CAS000002).

**18. INSTITUTIONAL CONTROLS:**

- a. Submit a proposal, acceptable to the Executive Officer, of the dischargers' recommended form and format for implementing Institutional Controls as required in the ROD/RAP.

**COMPLIANCE DATE: 90 days after Transfer of Property**

- b. Document the full execution and implementation of the approved Institutional Controls within 60 days of the Executive Officer's approval.

**COMPLIANCE DATE: 60 days after Executive Officer's approval.**

**19. Delayed Compliance:** If the dischargers are delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the dischargers shall promptly notify the Executive Officer and the Board may consider revision to this Order.

**C. PROVISIONS**

1. **No Nuisance:** The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).
2. **Monitoring:** The dischargers shall conduct and report monitoring activities as determined by the Executive Officer.
3. **Good Operation and Maintenance (O&M):** The dischargers shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.
4. **Cost Recovery:** The dischargers shall be liable, pursuant to California Water Code Section 13304, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Board-managed reimbursement or equivalent program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the dischargers over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

This provision applies to the Army and the Corps, to the extent allowable under Federal Law. This provision is not applicable while Board costs remain reimbursable under the

Department of Defense/State Memorandum of Agreement (DSMOA) program. The Army will provide funding consistent with DSMOA for appropriate regulatory oversight costs associated with remediation of Army contamination. All such funding is subject to the Anti-Deficiency Act.

5. **Access to Site and Records:** In accordance with California Water Code Section 13267(c), the dischargers shall permit the Board or its authorized representative:
  - a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
  - b. Access to copy any records required to be kept under the requirements of this Order.
  - c. Inspection of any monitoring or remediation facilities installed in response to this Order.
  - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the dischargers.
6. **Contractor / Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.
7. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).
8. **Electronic Document Submittal:** All technical reports and correspondence greater than 3 pages in length shall be submitted to the Board in an electronic format acceptable to the Executive Officer along with one paper copy.
9. **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies in electronic format as specified in Provision C.8:
  - a. Cal/EPA-Department of Toxic Substances Control
  - b. California State Coastal Conservancy
  - c. California State Lands Commission - Only Records Pertaining to the CSM
  - d. Local Repository: Novato Public Library, 1720 Novato Blvd., Novato 94949

The Executive Officer may modify this distribution list as needed.

**10. Reporting of Changed Owner or Operator:** The dischargers shall file a technical report on any changes in site occupancy or ownership associated with the property described in this Order.

**11. Reporting of Hazardous Substance Release:** If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the dischargers shall report such discharge to the Board by calling (510) 622-2300 during regular office hours (Monday through Friday, 8:00 to 5:00).

A written report shall be filed with the Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.

**12. Rescission of Existing Order:** This Order rescinds Waste Discharge Requirements Order No. 97-088.

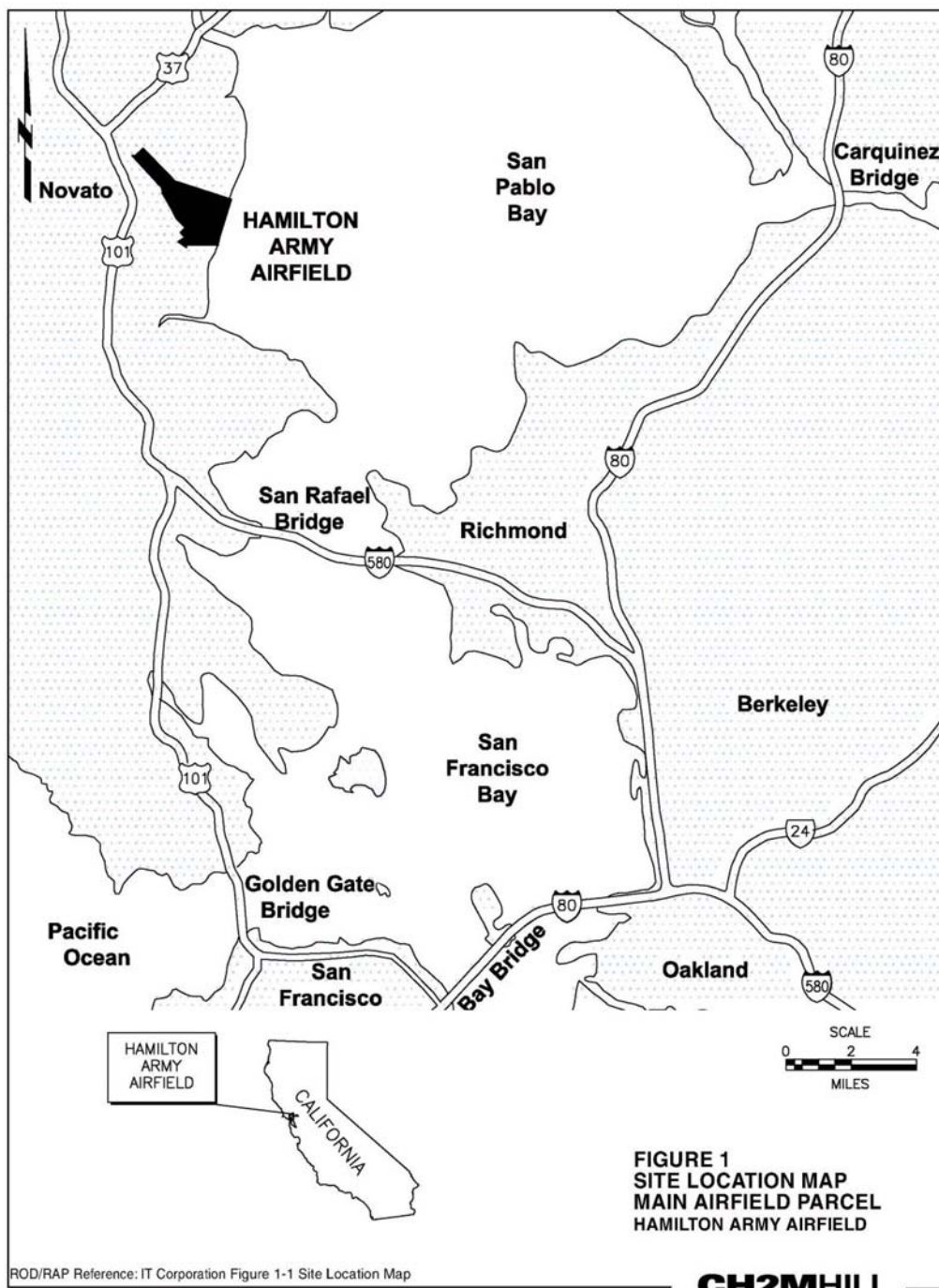
**13. Periodic SCR Review:** The Board will review this Order periodically and may revise it when necessary. The dischargers may request revisions and upon review the Executive Officer may recommend that the Board revise these requirements or may change them under authority delegated by the Board.

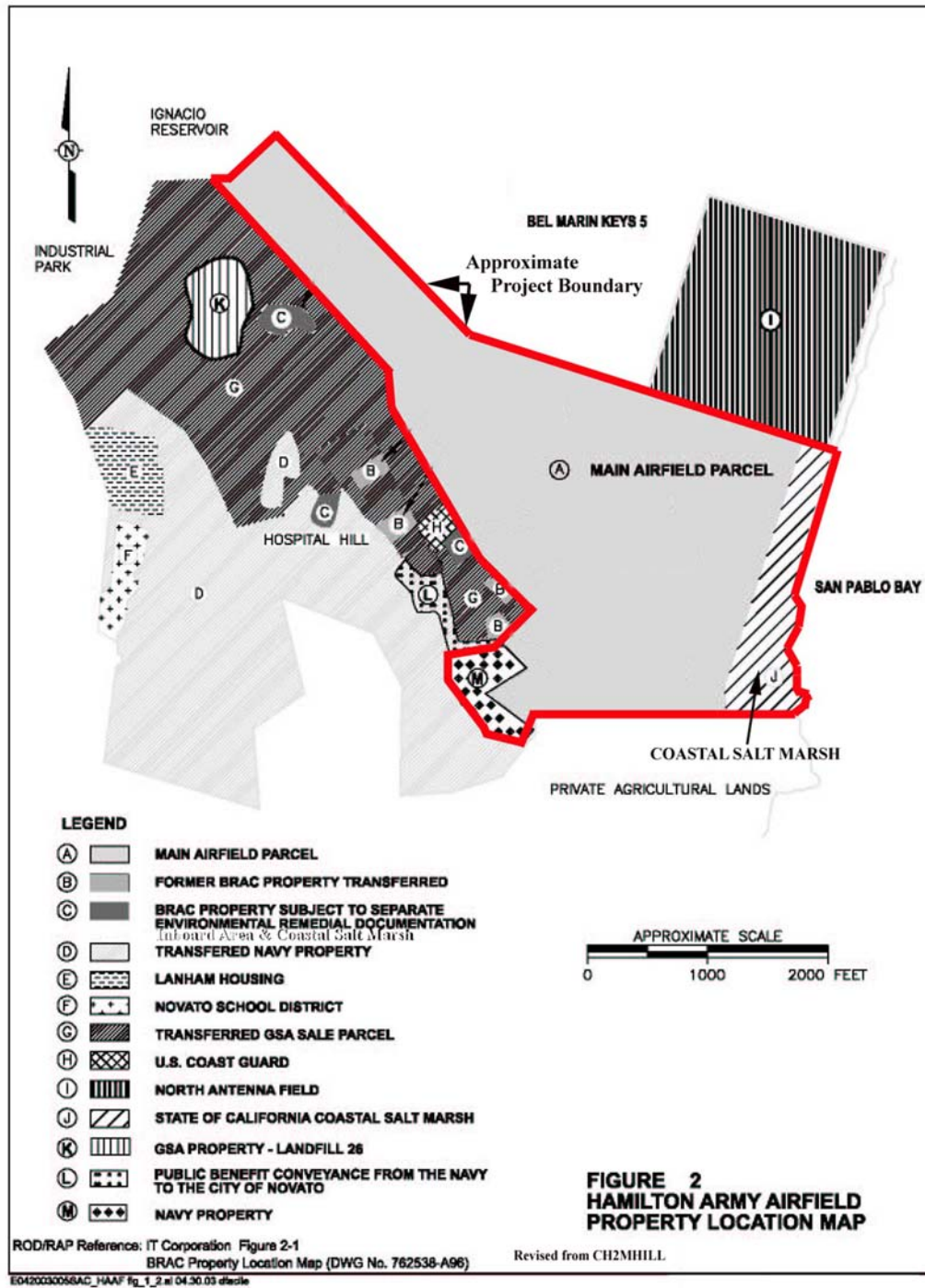
I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on August 20, 2003.

  
Loretta K. Barsamian  
Executive Officer

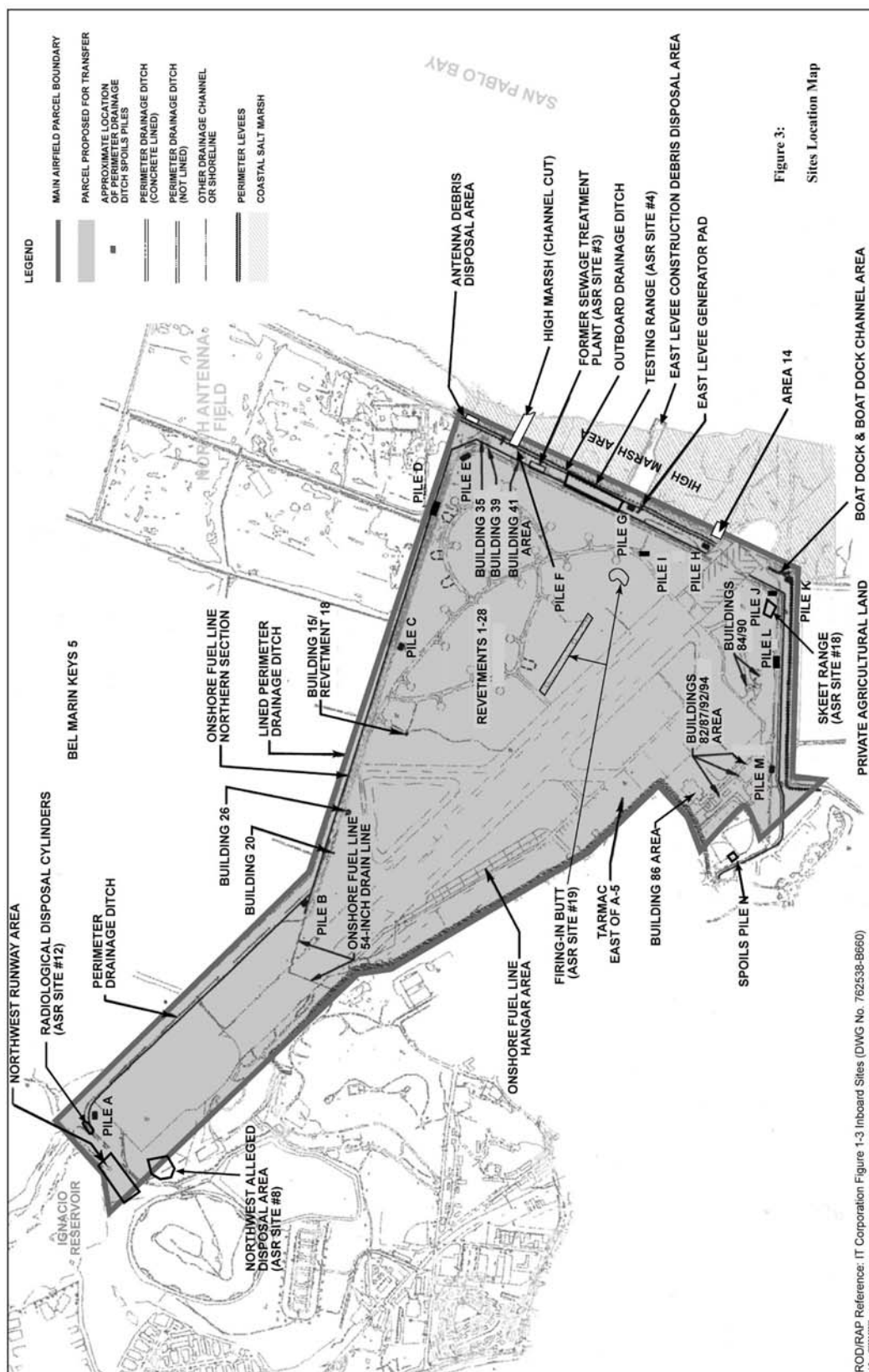
Figures:      Figure 1 – Site Location Map  
                  Figure 2 – Property Location Map  
                  Figure 3 – Sites Location Map

Tables:        Table 1 – Army BRAC Program Sites  
                  Table 2 – Summary of Preferred Alternatives  
                  Table 3 – Environmental Action Goals









**TABLE 1**  
**Army BRAC Program Sites**

**From ROD/RAP**

<b>Inboard Area Sites</b>	
Revetment 18/Building 15	
Building 20	
Building 26	
Building 35/39 Area	
Building 41 Area	
Building 82/87/92/94/Area (including storm drains)	
Building 84/90	
Building 86 (including storm drains)	
East Levee Generator Pad	
Former Sewage Treatment Plant (including sanitary and industrial waste lines)	
Northwest Runway Area	
Onshore Fuel Line	
<ul style="list-style-type: none"> <li>• 54-inch-diameter storm drain segment</li> <li>• Northern segment</li> <li>• Hangar segment</li> </ul>	
Perimeter Drainage Ditch (PDD)	
<ul style="list-style-type: none"> <li>• Lined outside HWRP-proposed channel cut</li> <li>• Lined within HWRP-proposed channel cut</li> <li>• Unlined</li> </ul>	
PDD Spoil Piles A, B, C, D, E, F, G, H, I, J, K, L, M, and N	
Revetments 1 through 17 and 19 through 28 (including storm drains)	
Tarmac East of Outparcel A-5	
<b>Coastal Salt Marsh Sites</b>	
Antenna Debris Disposal Area	
Area 14	
Boat Dock	
<ul style="list-style-type: none"> <li>• Channel area</li> <li>• Nonchannel area</li> </ul>	
East Levee Construction Debris Disposal Area (including burn pit)	
Former Sewage Treatment Plant Outfall	
High Marsh Area	
<ul style="list-style-type: none"> <li>• Proposed channel cut</li> <li>• Nonchannel cut</li> </ul>	

**TABLE 1**

**Army BRAC Program Sites**

**From ROD/RAP**

Historic Outfall Drainage Ditch

Outfall Drainage Ditch

**TABLE 2**

**Summary of Preferred Alternatives**

**From ROD/RAP**

Alternative	Sites
1—No Further Action	Revetment 18/Building 15 Building 20 Building 84/90 Perimeter Drainage Ditch (PDD) Spoils Piles E and H East Levee Generator Pad Tarmac East of Outparcel A-5 Northwest Runway Area Revetments 5, 8 through 10, 15, 17, 20, 24, 27, and 28 Radiological Waste Disposal Cylinders
2—Excavation and Offsite Disposal	East Levee Construction Debris Disposal Area (including burn pit) High Marsh Area <ul style="list-style-type: none"> <li>proposed channel cut</li> <li>nonchannel cut</li> </ul> Historic Outfall Drainage Ditch Outfall Drainage Ditch Boat Dock <ul style="list-style-type: none"> <li>nonchannel area</li> <li>channel area</li> </ul> Area 14 Former Sewage Treatment Plant Outfall Antenna Debris Disposal Area Building 35/39 Area PDD Unlined (Addressing DDTs > 1 ppm) Building 41 Area PDD Spoils Pile F Revetments 6 and 7 PDD, lined portion within proposed wetland channel
3—Manage In-Situ, with Monitoring, Maintenance, for Army BRAC Sites	Former Sewage Treatment Plant (including sanitary and industrial waste lines) Building 26



**TABLE 2**  
**Summary of Preferred Alternatives**

From ROD/RAP	
Alternative	Sites
	Building 35/39 Area
	Building 82/87/92/94/Area (including storm drains)
	Building 86 (including storm drains)
	PDD (lined portion outside proposed wetland channel)
	PDD (unlined)
	PDD Spoil Piles A, B, C, D, G, I, J, K, L, M, and N
	Onshore Fuel Line
	<ul style="list-style-type: none"> <li>• 54-inch-diameter Storm Drain Segment</li> <li>• Northern Segment</li> <li>• Hangar Segment</li> </ul>
	Revetments 1 through 4, 11 through 14, 16, 19, 21 through 23, 25, and 26
4—Manage Onsite, with Monitoring and Maintenance, for Army Civil Works Issues	Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway

**TABLE 3**  
**Environmental Action Goals**

From ROD/RAP			
Contaminant	Environmental Action Goals <sup>a</sup> (ppm)		Source <sup>b</sup>
	Coastal Salt Marsh	Inboard Area	
<b>Metals</b>			
Arsenic	23	16.7	Site-Specific Sediment Ambient BRAC Soils Ambient
Barium	188	190	Site-Specific Sediment Ambient BRAC Soils Ambient
Beryllium	1.68	1.03	Site-Specific Sediment Ambient BRAC Soils Ambient
Boron	71.6	36.9	Site-Specific Sediment Ambient BRAC Soils Ambient
Cadmium	1.8	1.2	Site-Specific Sediment Ambient ER-L
Chromium	149	112	Site-Specific Sediment Ambient SF Bay Ambient
Cobalt	26.7	27.6	Site-Specific Sediment Ambient BRAC Soils Ambient
Copper	88.7	68.1	Site-Specific Sediment Ambient SF Bay Ambient
Lead	46.7	46.7	ER-L ER-L
Manganese	1260	943	Site-Specific Sediment Ambient BRAC Soils Ambient
Mercury	0.58	0.43	Site-Specific Sediment Ambient SF Bay Ambient
Nickel	132	114	Site-Specific Sediment Ambient BRAC Soils Ambient
Silver	1	1	ER-L ER-L
Vanadium	136	118	Site-Specific Sediment Ambient BRAC Soils Ambient
Zinc	169	158	Site-Specific Sediment Ambient SF Bay Ambient

**TABLE 3**

**Environmental Action Goals**

**From ROD/RAP**

Contaminant	Environmental Action Goals <sup>a</sup> (ppm)		Source <sup>b</sup>	
	Coastal Salt Marsh	Inboard Area	Coastal Salt Marsh	Inboard Area
<b>Semivolatile Organic Compounds (including PAHs)</b>				
PAHs, total	4.022	4.022	ER-L	ER-L
Pentachlorophenol	0.017	--	HHERA—Marine Invertebrate	--
Phenol	0.13	--	HHERA—Marine Invertebrate	--
<b>Petroleum Hydrocarbons</b>				
TPH-dl/TPH-motor <sup>c</sup>	144	144	Presidio—Saltwater Ecological Protective Zone	Presidio—Saltwater Ecological Protective Zone
TPH-g/JP-4	12	12	Presidio—Saltwater Ecological Protective Zone	Presidio—Saltwater Ecological Protective Zone
<b>Pesticides/Herbicides/PCBs/Dioxins</b>				
BHCs, total	0.0048	--	Lindane AET (polychaete)	--
Chlordanes, total	0.00479	--	PEL	--
DDTs, total <sup>d</sup>	0.03	0.03	RART—California clapper rail	RART—California clapper rail
Dichlorprop	0.14	--	HHERA—California clapper rail	--
Endrin Aldehyde	0.0064 <sup>e</sup>	--	HHERA—Marine Invertebrate	--
Heptachlor	0.0088 <sup>f</sup>	--	HHERA—Marine Invertebrate	--
Heptachlor epoxide	0.0088	--	HHERA—Marine Invertebrate	--
MCPA	7.9 <sup>g</sup>	--	HHERA—Marine Invertebrate	--
MCPP	3.0	--	PQL	--
Methoxychlor	0.09	--	HHERA—Marine Invertebrate	--
PCBs, total	0.09	--	HHERA—California clapper rail	--
Dioxins (Total TCDD TEQ) <sup>h</sup>	0.000021	--	EPA	--

**TABLE 3**

**Environmental Action Goals**

**From ROD/RAP**

Contaminant	Environmental Action Goals <sup>a</sup> (ppm)		Source <sup>b</sup>	
	Coastal Salt Marsh	Inboard Area	Coastal Salt Marsh	Inboard Area

NOTE: This is a comprehensive list of action goals. All action goals do not apply at each site. Site-specific action goals are discussed in Sections 2.2 and 3.2. of the **ROD/RAP**

-- Not applicable

TCDD = tetrachlorodibenzo-p-dioxin

TEQ = toxicity equivalence

<sup>a</sup> If contamination above the Environmental Action Goals is found in the coastal salt marsh beyond those areas already identified as requiring remediation, the Army and State will determine whether additional or continued excavation is warranted by considering the potential risk to public health and the environment from the residual contaminants and the resulting habitat destruction.

<sup>b</sup> The sources of the Environmental Action Goals are:

- **Metals:** Site-specific ambient levels from Appendix A - U.S. Army, 2001, *Final Human Health and Ecological Risk Assessment*; Effects Range-Lows (ER-Ls) from Long, E.R, D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995, "Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments," *Environmental Management*, 19:81-97; *San Francisco Bay RWQCB Staff Report: Ambient Concentrations of Toxic Chemicals in San Francisco Bay Sediments*, May 1998.
- **DDTs:** Value developed using exposure parameters proposed by USFWS and agreed to by the DTSC, RWQCB, and the Army.
- **Petroleum hydrocarbons:** *Report of Petroleum Hydrocarbon Bioassay and Point-of-Compliance Concentration Determinations; Saltwater Ecological Protection Zone; Presidio of San Francisco, California*, Dated December 1997.
- **PAHs:** ER-Ls from Long, E.R, D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995, "Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments," *Environmental Management*, 19:81-97.
- **SVOCs:** US Army, 2001, *Final Human Health and Ecological Risk Assessment*.
- **Pesticides, Herbicides, PCBs, and Dioxins:** Table 5-1 from the US Army, 2001, *Final Human Health and Ecological Risk Assessment* (marine invertebrate-amphipod and California clapper rail); practical quantitation limits (PQLs) from previous sampling events; U.S. EPA, 1993a, *Interim Report on Data and Methods for Assessment of 2,3,7,8-Tetrachlorodibenzo-p-dioxin Risks to Aquatic Life and Associated Wildlife*. (EPA/600/R-93/055); for lindane, Screening Quick Reference Tables (SQuiRTs), NOAA, updated September 1999. DDT value developed using exposure parameters proposed by USFWS and agreed to by DTSC, RWQCB, and the Army.

<sup>c</sup> The action goal for TPH diesel/TPH motor oil is also used as the action goal for UHE (unknown hydrocarbons extractable)

<sup>d</sup> The total DDT concentration in the Coastal Salt Marsh Area or Inboard Area shall not exceed 1.0 ppm. Areas with total DDT concentrations greater than 1.0 ppm shall be excavated and disposed of offsite.

<sup>e</sup> The goal for Endrin Ketone is used as a surrogate for Endrin Aldehyde

<sup>f</sup> The goal for Heptachlor Epoxide is used as a surrogate for Heptachlor

<sup>g</sup> The goal for 2,4,D is used as a surrogate for MCPA

<sup>h</sup> Dioxin is only considered a COC at the ELCDDA Burn Pit